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HOW TO MAKE A PENNY

AT THE DENVER MINT

A lot of people save pennies. Many more people just put them in a drawer and forget about them. That's too bad. Pennies are needed in the world of business. If all the forgotten pennies were brought out of hiding and used, it would save the mint a lot of time and money making more and more pennies every year.

The penny is our country's most popular coin and the mint makes more pennies than any other coin. In fact, 76 percent of all the coins made each year are pennies. This year the mint plans to make 5½ billion pennies.

Pennies are made of two metals. They are 95 percent copper and 5 percent zinc. "Nickels" are also made of two metals. They are 75 percent copper but only 25 percent nickel. This alloy is called cupro-nickel.



All other coins are called composite coins because they are made in three layers. The outside layers are cupro-nickel and the middle layer is pure copper. Dimes, quarters and half-dollars all have three layers as does the new dollar coin first issued in the fall of 1971. The layers must be bonded together. This is called cladding.

The Act of April 2, 1792, provided for a national coinage and the establishment of the U.S. Mint. The first mint opened in Philadelphia and it was the first public building erected by the United States Government. The first coins made were pattern silver half dimes made by hand from silver belonging to George Washington. In 1793 copper cents and half cents were the first coins made for regular use.

**MAKE-UP**

The make-up box is weighed on a floor scale. It's called a make-up box because it holds the raw metal from which coins are made up. A big crane picks up the box and takes it to the melting furnace.

**MELTING**

The furnace is electric and gets red hot. When the metal is put inside the furnace it melts. The furnace can hold 500 pounds of metal.

**CASTING**

The melted metal is poured into a mold that looks like a giant candy bar. The bar is called an ingot. When the melted metal cools it gets hard again. The ingot is about 5'3" long, 12" wide and weighs about 412 pounds.

**SHEAR**

Each ingot has the top three inches cut off. Now it is five feet long and weighs 400 pounds. The scrap is sent back to the furnace.

**INSPECTION, COUNTING AND BAGGING**

At last we have a penny! Bad pennies are not allowed to leave the mint. Good pennies go to the counting machine. After 5,000 pennies fall into the bag a sewing machine sews the bag shut. The bags go to the Federal Reserve Bank. Then the pennies go to you.

**COINING PRESS**

The shiny golden penny blanks are ready to receive the impression of President Lincoln's portrait on one side and the Lincoln Memorial on the other. The designs are impressed from hard steel coinage dies onto the blank. Fingers on the press firmly grab each blank and one heavy blow stamps the design on each side.

**UPSETTING MILLS**

The blanks roll on their edges through this machine. They are soft enough so that when the machine presses on them it raises a rim around the blanks.

**ANNEALING AND CLEANING LINES**

The blanks are put into a gas furnace to be softened again. (Annealing means to soften). They come out of the furnace red hot and drop into water to cool. The blanks are then cleaned and polished. Then they are rinsed off with water and dried.

**BLANKING PRESS**

The strip is ready for punching out round pieces of metal about the size of a penny. They are called blanks, or planchets. This machine works just like a cookie cutter. After the blanks are punched out any strip left over is sent back to the make-up box.

**ROLLING LINES**

The ingot is 1 1/4 inches thick. Many things happen here:

The rollers are close together and press down so hard that when the ingot comes out after several trips around and through the rolls it is only one-quarter of an inch thick.

The strip is then coiled and moved to a second rolling mill. When it comes out it is only one-twentieth of an inch thick, 12 inches wide and about 175 feet long. Rough edges are trimmed off the strip to make it smooth.

DRUM COUPLES
LUBRICANT
THE DOWNSIDE



The Denver mint traces its history to the fall of 1862 when, for \$25,000, the United States government purchased the private mint of Clark, Gruber & Co. at 16th and Market streets.

Although the Act of April 21, 1862, provided for the establishment of a Denver mint the facility first opened as an Assay Office. Its operations were restricted to melting, refining, assaying and stamping of gold bars as to fineness and weight which were formed from gold dust and nuggets brought in by miners in the surrounding area.

That was five years after Denver was founded in 1858, the year placer gold was discovered at the junction of the South Platte River and Cherry Creek, now the geographical center of the city. The following year lode gold was found. Colorado was organized as a Territory in 1861 and earned the nickname of the "Centennial State" in 1876 when, a hundred years after the signing of the Declaration of Independence, statehood was achieved.

In 1895 Congress approved a mint for the coinage of gold and silver. The Assay Office moved to its present structure in 1904 and in February of 1906 advanced to the status of a U.S. mint when coinage operations began.

During the first year of operation, the mint turned out gold coin valued at 23.8 million dollars and silver coins valued at 3.2 million dollars. Coinage of five cent and one cent pieces began in 1911 and that year 12.6 million pieces were minted.

To meet the growing demand for coins, the present building was expanded in 1936 and new equipment installed to speed and perfect the manufacturing process. Again, in 1946 and 1965, new wings were added. Today the Denver mint is capable of producing 850,000 coins per hour.

Visitors are welcome at the Denver mint. One of the highlights of the tour is a display of gold bars worth over \$1,000,000. Each bar weighs approximately 27½ pounds and is valued at \$14,000.

The Denver Mint is a part of a nationwide Treasury Agency known as the Bureau of the Mint. From headquarters in Washington, D.C., the Director of the Mint administers the Philadelphia and Denver Mints, the Assay Offices at New York City and at San Francisco and the Depositories at Fort Knox, Ky. and West Point, N.Y. for the storage of gold, silver and other coinage metals.

